Instructor: Bryce Decker
Email: Brycedecker@my.unt.edu
Office: Zoom
Office Hours: MTWR 1:30-2:00pm

Class meetings: MTWR 2:00-3:50pm

Class meets in: (Zoom ID) 939-996-25726. You may also access class via Canvas under the Zoom tab.

Catalog Course Description

Math 1350 covers concepts of sets, functions, numeration systems, different number bases, number theory, and properties of the natural numbers, integers, rational, and real number systems with an emphasis on problem solving and critical thinking.

Prerequisite

A student must have successfully completed either Math 1100 or Math 1180 with a grade of C or better. This course is restricted to students in math placement groups 2 & 3. This course is only for those students requiring it for teacher certification. Students failing to meet the prerequisite requirements, may be administratively dropped with a possibility of no refund.

WHAT is this course about?

This course provides a TEACHER'S PERSPECTIVE of the mathematics of the elementary school curriculum – in particular, mathematical problem solving, numbers & operations, and elementary number theory.

- This class is about learning to understand mathematics—and to understand others' understandings of mathematics—particularly developing an understanding of the children that you will eventually teach.
- This means that you need to understand mathematics in a connected, meaningful way rather than as a set of rules to be followed without understanding the reasons for the procedure.
- Part of our goal this semester is your mathematical growth. We anticipate this means a careful look at the nature of mathematics, at what it means to do mathematics, and at your own attitudes toward and beliefs about mathematics.

HOW do you approach this course?

It is important that you realize that you cannot solve with understanding mathematical problems by observing and mimicking others doing mathematics. You must participate mentally in the learning process.

- This participation includes studying the material; listening to and working with others; struggling with non-routine problems; symbolically representing mathematical thinking and reasoning; reflecting on what you are doing; as well as the more typical tasks of doing homework, completing quizzes and examinations.
- The emphasis in this course will be on problem solving and reasoning with understanding rather than memorizing and using equations or algorithms.

WHY do we take this approach?

Too often our previous experiences with mathematics have caused us to focus on memorization and finding correct answers. Consequently our understanding of what mathematics is and what it means to do mathematics is shaped by these experiences and is rather limited and narrow. And yet, mathematical reasoning and problem solving consists of **so much more.**

- The learning and subsequent understanding of mathematics through problem solving with a focus on numerical reasoning provides a model for lifelong learning. The multi-dimensional view of mathematics gives you a broad scope of the discipline of mathematics and to allow you to see the pervasiveness of mathematics in your life.
- The experiences in this course will assist you in your role as an educated informed citizen in your community, and in your role as a teacher involved with children and mathematics.

Course Objectives

This course examines key concepts taught in elementary/middle school mathematics along with some algorithms and manipulatives that can be used to gain a deeper understanding of these concepts. By the end of the course you should be able to do the following:

- better understand the mathematical concepts needed to be able to teach mathematics to young children with confidence, competence, creativity, and capacity;
- understand different problem solving techniques used in teaching EC-8 grade students;
- understand and apply the use of sets and set operations when teaching mathematical concepts to EC-8 grade students;
- understand and analyze different number systems;
- understand the operations (addition, subtraction, multiplication, division) and be able to apply different algorithms when teaching them to EC-8 grade students;
- understand number theory and examine different methods of teaching this concept to EC-8 grade students;
- understand fractions and their operations and be able to apply different algorithms to teach this concept to EC – 8 students.

Course Materials

1. **(Required) Canvas Course site:** https://unt.instructure.com/login
   Login with your unique ID and password. All materials for the course will be posted under course content as we travel through the semester. If you do not see the course when you log on to Canvas after the first day of class, send me a message with your EUID so I can add you.

2. **(Required) MyLabMath (MLM) through Canvas**
   You will access your math course platform from within Canvas Learn. Some of the course content (assignments, textbook, help tools, etc.) is delivered in the online platform MLM accessed through Canvas.
   - Register in MLM by the first week of classes.
   - Your instructor will walk you through the registration process. So be sure to understand the procedures.
   - Note that "*Not having access to MLM*" is not a valid reason for missing any assignments.

3. **(Recommended) Supplies**
   - 3-Ring Binder / folder to store and organize course materials
   - Notebook or loose-leaf grid/graph paper
   - Pens, Pencils, Markers / crayons, scissors, construction paper.

4. **(Optional) Print Textbook**
   Mathematical Reasoning for Elementary Teachers, 7th edition by Long, DeTemple, and Millman; ISBN-13: 978-0-321-90099-9. The textbook in electronic form is included in MLM. MLM may be purchased packaged with the textbook, as a stand-alone, or directly online at registration.

Note: For any sort of computer- related / Canvas-specific issues, **FIRST contact the UNT Help Desk** (http://it.unt.edu/helpdesk). **Bookmark** this site as it has detailed information on how to get help with technology-related issues.
- The desk will issue a remedy ticket number, and they can contact the instructor if multiple students are having the same problem! Make sure to have the desk fill out a "remedy ticket" so we can trace your call in the system. We must have a remedy ticket number to help you!

Summer 2020 Important Dates (https://registrar.unt.edu/registration/summer-5w1-10w-and-8w2-sessions)

Classroom policies (listed alphabetically)

Academic Accommodations

If you have a disability that may affect your participation in this class, you must first register with the Office of Disability Access (ODA) to verify your eligibility. For additional information see the ODA website at https://disability.unt.edu/. You may also contact them by phone at (940)565-4323.

- If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to your instructor. We will then have a confidential discussion regarding your specific needs. You should see me by the end of the first week of class so we can make appropriate arrangements.

Academic Integrity

All work turned in on quizzes and the final exam must be entirely your own. Serious infractions may result in an F for the course. Please review information available at http://policy.unt.edu/sites/default/files/untpolicy/pdf/7-Student_Affairs-Academic_Integrity.pdf for information regarding Academic Misconduct. This policy places full responsibility on the student for the content and integrity of all work submitted.

Attendance

As prospective teachers, learners, and as members of the classroom community, you are expected to be a responsible and regular attendee. In this course, for the most part, you will be working in small groups. Thus, the time you collaborate with your peers uncovering course content is both valuable and unique. You do have an obligation to fulfill your responsibilities to your own self (as a learner), to your group (as a collaborator) and to the larger classroom community (as a prospective teacher). Know that class discussion cannot be easily replicated by reading someone else's notes. Here are specific attendance guidelines.

- Do not be late to class and be present for the entire class meeting.
- Under unavoidable circumstances, if you must arrive late or leave early, please do so as discreetly as possible. Let the instructor know in advance so that you may not be marked absent for the day.
- Do not schedule meetings with other professors or other activities during any part of our class.
- If you are absent, watch the recorded lecture; you are responsible for anything covered or mentioned in class.
- I will hold you responsible for doing all classroom activities you missed, getting the notes from a classmate, and turning in all work on the day it is due.
- More than 4 absences FOR ANY REASON, may result in a 5% reduction in your course score.

  Note: If you have significant health problems or other issues, do talk to so we may discuss possibilities and University policy.

Cell Phone

Please avoid using cell phones during class time. If you need to be available for emergency phone calls; do set your ringer to silent or vibrate and silence your mic to answer any calls.

Code of Conduct

All students are expected to behave in a professional manner in class. Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom, and the instructor may refer the student to the Center for Student Rights and Responsibilities to consider whether the student's conduct violated the Code of Student Conduct. The university's expectations for student conduct apply to all instructional forums, including university and electronic classrooms, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at www.unt.edu/csrr.

Email Communication

Access your my.unt.edu account the first day of class.

- **You must use your UNT email account for all correspondence** for legal reasons.
- You are welcome to email me at brycedecker@my.unt.edu with questions / comments and I will respond to you within 48 hours.
    - o You should email me in a professional manner. (https://www.grammarly.com/blog/professional-email-in-english/)

Drop Policy

https://registrar.unt.edu/registration/dropping-class

Exams

There will be 3 in-class exams during the semester. If unavoidable circumstances keep you from attending class on the day of a quiz or exam, please contact me promptly (a message in the office or an email sent before class is fine) to explain the absence and, if approved, schedule a make-up.

- I **will require** documentation of the reason for absence. Make-up exams will only be scheduled after the actual exam dates. If approved, this exam must be completed **prior** to the next class meeting.
- Note that the 3rd exam will be given during the time scheduled for this class to take a final exam. The exam will be in our regular classroom. There will be no make-up sessions for this exam. Please plan accordingly!
- Do consult www.unt.edu/registrar for a detailed final exam schedule.
- **Exam procedure:**
    - o You must join the Zoom session with video on by 2:00pm.
    - o I will do a camera check.
        - ▪ This means I must be able to see your paper and keyboard on your camera feed.
    - o I will then publish the PDF exam to canvas.
    - o You will answer the exam on your own paper.
    - o Once complete you will inform me that you are going to begin taking photos and uploading your exam to canvas. You will upload the documents as a single PDF file.
    - o Once you have uploaded the exam you will message me again and I will confirm that I have received your exam.
    - o Then you may leave the Zoom session.
    - o Failure to follow these procedures may result in the grade of a zero.

Group work

Group work is nurtured and highly valued in this class. **In-class work** is carefully designed to engage you with your peers in thinking deeply about course content. Such exercises help you apply skills to activities and learning that are different from the routine exams and homework. You swim or sink together as a group. In order for all group members to benefit from the group experience, each group member must believe that one cannot succeed unless everyone else succeeds and each member must be accountable for contributing a fair share of work. I strongly recommend that you adhere to the social and the socio-mathematical norms listed in this syllabus to sustain respectful and successful learning relationships with your peers.

Help Sessions

- **Math Lab:** More information is available at www.math.unt.edu/mathlab.
- **UNT learning center:** The center offers tutoring in a variety of formats at no additional cost to students. Students can choose from one-on-one tutoring, online tutoring, drop-in tutoring, or group tutoring. Students can request a tutor online through the Learning Center website: http://learningcenter.unt.edu/tutoring.

Homework

Homework will be assigned on MLM and via in class assignments and will be posted on the course Canvas site. It is necessary to DO the assigned problems in order to understand the material. I urge you to work with your peers outside

of class time. You can learn a lot by trying to explain how to do problems to someone else. You should expect to spend 10-12 hours a week on HW assignments. It is your responsibility to be attentive about the assignments and deadlines.

Written Homework
- Each week, you will be expected to complete written homework that includes problems from the textbook and other tasks relevant to class work.
- Written homework must be neat, labeled, and submitted to me on time; **Late homework will not be accepted.**
- Homework should be uploaded to canvas as a single PDF file.
  - o If you have an iPhone, you may use the notes app to "scan" the homework directly into a PDF. If you have another type of device, there are <u>free</u> scanner apps.

Online Homework
- Please maintain a separate notebook for doing homework problems. Make sure to write down what section the problem is from and work out the problem showing all of your steps.
- Even though MyLabMath may not require you to show all the steps in your work, I want to encourage you to still do ALL of the steps. At times, MLM only requires a final answer, which will be frustrating for some of you because you cannot receive partial credit for correct work.
- Check MLM each day to be sure that you are keeping up with assignments and due dates.
- A grade of zero will be assigned to any homework assignment not completed online and submitted by the due date and time.
- DO NOT wait until the last minute to complete an online assignment; this way you can avoid last minute technical glitches including loss of internet access.

In-class Participation
Students are expected to attend the Zoom meeting MTWR 2:00-3:50pm with their camera and mic on. You should find a quiet space in your dwelling. It is imperative that we have an interactive class environment; this is reflected in the fact it is 10% of your grade.
Failure to:
- Attend lecture
- Have an active camera/mic
- Participate daily
Will lead to a grade reduction in this category.

Incompletes
Beginning June 25th, a student that qualifies may request a grade of "I", an incomplete. An "I" is a non-punitive grade given only if ALL three of the following criteria are satisfied:
- The student is passing the course.
- The student has a justifiable (and verifiable) reason why the work cannot be completed as scheduled; and
- The student arranges with the instructor to complete the work within one academic year.

Progress Reports
Students needing progress reports completed/signed for athletics, scholarships, and/or other organizations must attend office hours to get them completed.

Student Perception of Instruction (SPOT)
A student evaluation of instruction is a requirement for all organized classes at UNT. You will be given a link to this short survey at the end of the semester, providing you a chance to comment on how this class is taught. You will receive more information about this survey towards the end of the semester.

Succeed at UNT

This is a new campaign to provide students with consistent student success messages, and user-friendly, accessible links to student support services. The six focused messages are: SHOW UP, FIND SUPPORT, TAKE CONTROL, BE PREPARED, GET INVOLVED, and BE PERSISTENT. You can access multiple student resource links, as well as short videos with student messages by going to https://success.unt.edu

Technology
In this course, we will use rely on the use of technology.
- We will regularly use Canvas, MLM, and UNT email.
- You may bring a smart phone / iPad / tablet / computer to class but use it wisely.

Useful Resources on Campus
- Counseling and Testing Services (CTS) provides comprehensive psychological services to University of North Texas students (http://studentaffairs.unt.edu/counseling-and-testing-services)
- Dean of students: https://deanofstudents.unt.edu/

Video Assignments

You will complete 3 assignments based on videos of children attempting math. The assignments will offer flexibility as far as what you turn in, but ultimately will be beneficial in your growth as a teacher. More detailed instructions will be offered on the assignments.

Course Assessment & Grading Scale

Assessment	% of the course grade
Exams	75
MLM & Written Homework	5 + 5
In-class Participation	10
Video Assignments	5

Grading Scale
A=90+; B=80-89; C=70-79; D=60-69; F=0-59
Grades are determined solely on your performance on the assessments listed above. **There is NO EXTRA CREDIT!!** Final grades are weighted. Simply calculating a percentage using total points scored will not be an accurate reflection of your final grades.
NOTE: I do reserve the right to amend, append, or otherwise make changes to this syllabus should the need arise. Any such change will first be discussed with the students and then announced in class.

TALK TO ME!

If at any time you have questions/concerns about the material covered in class and my expectations or any course-related matter, do approach me for a clarification. I welcome constructive criticism! If my posted office hours are not convenient for you do let me know. We can meet at a time that is convenient for both of us. I look forward to working with you!

Week	Date	Topic	Date	Topic
1	June 1	Syllabus; Intro to Course Problem Solving	June 2	Problem Solving
1	June 3	Problem Solving	June 4	Problem Solving
2	June 8	Sets and Set Operations Sets, Counting, and Whole Numbers	June 9	Sets, Counting, and Whole Numbers Review for Exam 1
2	June 10	**Exam 1**	June 11	Numeration Systems
3	June 15	Numeration Systems	June 16	Conceptual Models for Addition & Subtraction of Whole Numbers
3	June 17	Algorithms for Addition & Subtractions of Whole Numbers	June 18	Review for Exam 2
4	June 22	**Exam 2**	June 23	Conceptual Models for Multiplication & Division of Whole Numbers
4	June 24	Algorithms for Multiplication & Division of Whole Numbers	June 25	Number Theory; Divisibility Rules
5	June 29	GCF & LCM Introduction to Rational Numbers	June 30	Fractions – Conceptual Models Operations with Fractions & Mixed Numbers
5	July 1	Operations with Fractions & Mixed Numbers	July 2	Review for Exam 3

Exam 3

July 3

This calendar is subject to change.

Social and Socio-mathematical Norms

Adhering to the social and socio-mathematical norms (Yackel & Cobb, 1996) will enable you to sustain respectful and successful learning relationships with your peers. Social norms enable learners to collaborate and function to their fullest potential. Socio-mathematical norms (those that support and foster mathematical thinking) enable learners to function in an environment that fosters problem solving and inquiry.

Social Norms	Sociomathematical Norms
Students question each other's thinking.	Students ask each other questions that press for *mathematical* reasoning, justification, and understanding.
Students explain their ways of thinking.	Students explain their solutions using mathematical argumentation.
Students work together to solve problems.	Students reach consensus using mathematical reasoning and proof.
Students solve problems using a variety of approaches.	Students compare their strategies looking for mathematically important similarities and differences.
Students see making mistakes as a natural part of learning.	Students use mistakes as an opportunity to rethink their conceptions of mathematical ideas and examine contradictions. Mistakes support new learning about mathematics.

Yackel, E., & Cobb, P. (1996). Sociomathematical norms, argumentation, and autonomy in mathematics. *Journal for Research in Mathematics Education, 27*, 458-477.

Remember! In this course, your role is not restricted simply to that of a *learner of mathematics*. You are also learning to become a **teacher of mathematics**. Hence, you must learn to be and remain an earnest listener, a willing collaborator, and an effective communicator.

- As an <u>earnest listener</u> you are attentive, empathetic, non-disruptive and non-judgmental. Furthermore, you are constantly reflection, probing and seeking clarifications to better understand the other person's point of view.
- <u>Collaboration</u> entails a willingness to offer ideas, listen to others' ideas, and give thoughtful feedback to each other as you work together to solve the mathematics problems.
- <u>Effective communication</u> might be in the form of explanation, leading classroom discussions, modeling good problem-solving techniques, listening to students' thinking, or probing with good questions.